



Reserve Estimate Based on the Claims Data of Individual Customers

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Abstract

Suppose the claims data of individual customers consist of the delay times in reporting the claims, delay times in payments and the severities of claims. A mixture of two multivariate power-normal (MPN) distributions and a degenerate distribution is fitted to the vector of variables consisting of the sum insured, the claim and payment records until the present time and the outstanding claims liabilities (OCL). When the sum insured together with the claim and payment records of a customer until the present time are given, a conditional distribution of the OCL is derived from the fitted MPN mixture distribution. The distribution of the sum of the OCL over the customers in a company is obtained from the conditional distributions of the OCL pertaining to the individual customers. From the distribution of the sum of OCL, the provision of risk margin for adverse deviation can be calculated to provide a 75% level of capital adequacy at the company level.

Keywords: Outstanding claims liabilities; reserve estimation; multivariate power-normal distribution; individual claims data.